



# Updates to ENERGY STAR® Portfolio Manager Metrics

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US EPA ENERGY STAR



# ENERGY STAR® PortfolioManager®

## Management Tool



Assess whole building energy and water consumption, plus waste



Track changes in energy, water, greenhouse gas emissions, and cost over time



Track green power purchase



Create custom reports



Share/report data with others



Apply for ENERGY STAR certification



# ENERGY STAR® PortfolioManager®

Hundreds of metrics, including:



**Energy use**  
Source, site,  
weather  
normalized,  
demand



**Water use**  
Water use  
intensity,  
Water Score  
(for Multifamily)



**Waste &  
Materials**  
Waste intensity,  
diversion rate



**1-100  
ENERGY  
STAR score**



**GHG  
emissions**  
Indirect,  
direct, total,  
avoided



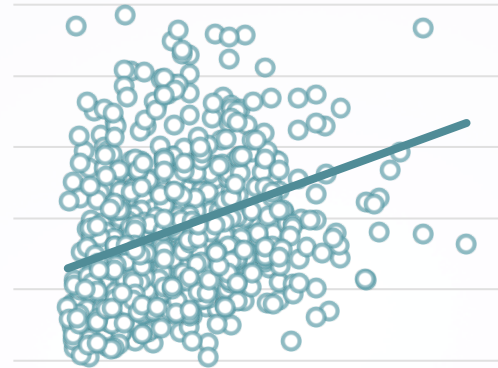


- **Hundreds of thousands of buildings benchmarking**
- **Two dozen local benchmarking policies**
- **One foreign government partnership (Canada)**

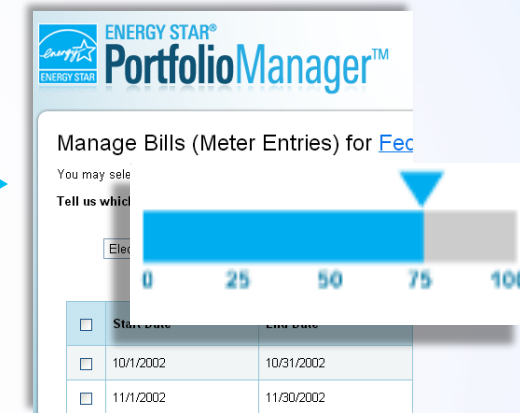
# EPA's 1 – 100 ENERGY STAR scores are based on market data



**Nationally representative survey**  
- CBECS gathers data on building characteristics and energy use from thousands of buildings across the U.S.



EPA creates a **statistical model** that correlates the energy data of the property use details to identify the key drivers of energy use, accounting for weather variations

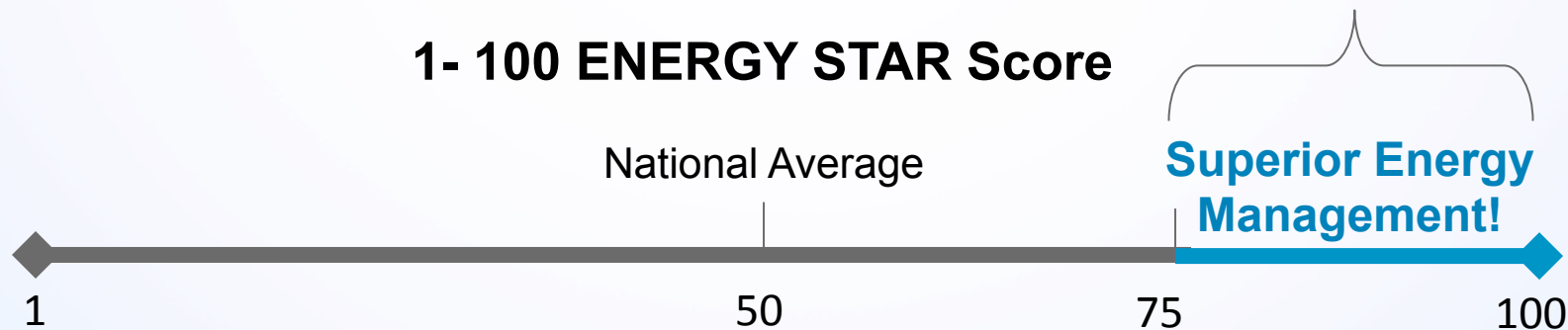


**Compares the actual energy data for a building to the modeled estimate** to determine where the building ranks relative to its peers on a 1-100 scale

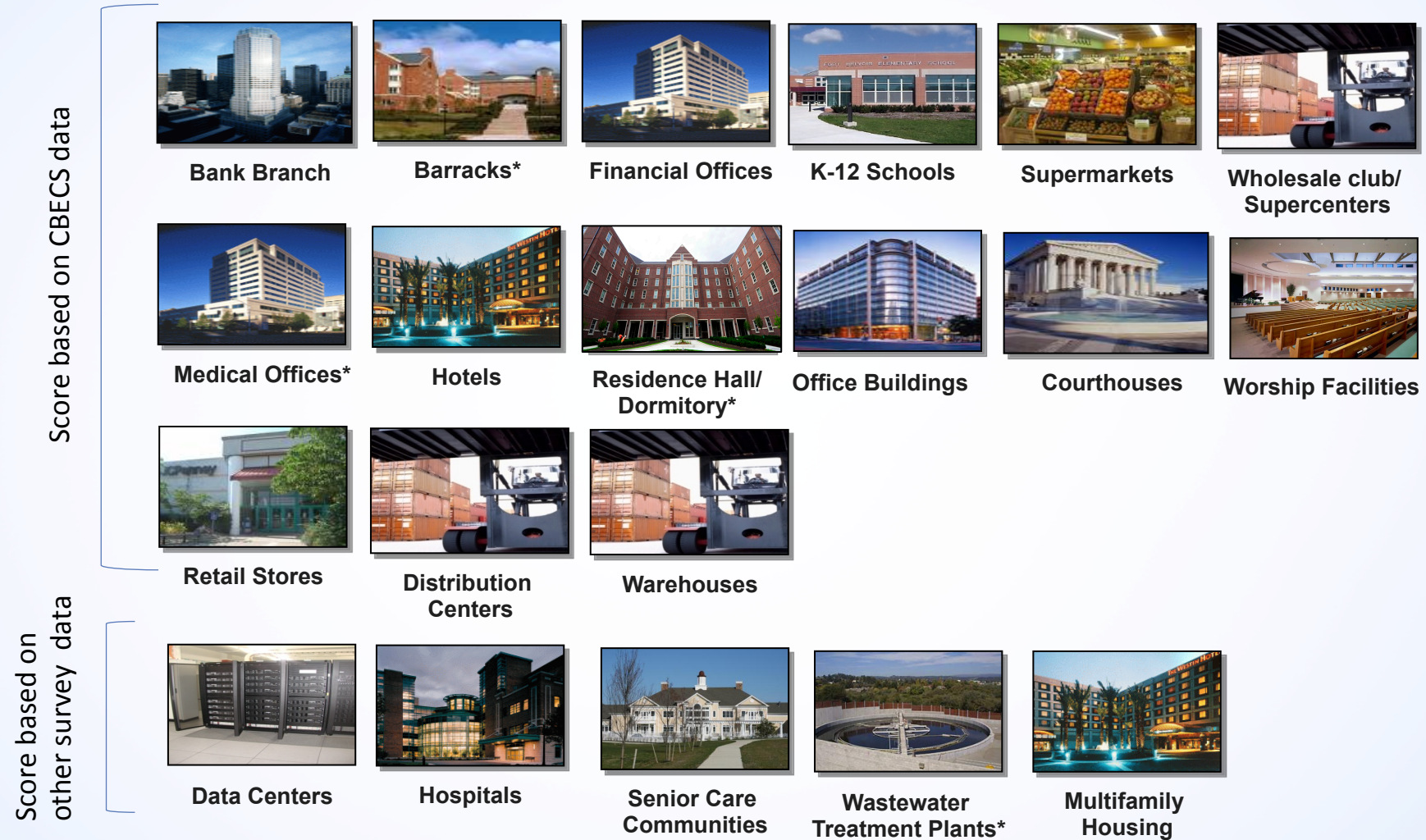


# ENERGY STAR certification for commercial buildings

- Building must be in the United States or territories
- Achieve an ENERGY STAR score of 75 or higher
- Apply for ENERGY STAR recognition via Portfolio Manager
- Application must be verified by a licensed professional
- Awarded based on the calendar year of application



# Property types with 1-100 ENERGY STAR scores



\*These building types are not eligible for ENERGY STAR certification.

# What's getting updated?

- 1-100 ENERGY STAR score models (based on CBECS 2012)
  - **Offices**
    - Financial offices
    - Bank branches
    - Courthouses
  - **K-12 Schools**
  - **Retail**
    - Retail store
    - Warehouse club/ supercenter
  - **Supermarkets**
  - **Hotels**
  - **Warehouses**
    - Refrigerated
    - Non-refrigerated
    - Distribution centers
  - **Houses of Worship**
- National source energy factor
- Data center benchmarking options



# Updates to design metrics

- ENERGY STAR Portfolio Manager and Target Finder generate metrics used to evaluate *energy design targets of new construction*, including the 1-100 score.
- Both tools calculate metrics using the same underlying methodology, so design metrics are also getting a refresh.



# Future updates to note

- Currently conducting national surveys of US hospitals and medical office buildings
- Efforts supported by industry partners
- Based on the results, we hope to update ENERGY STAR scores for hospitals and medical office buildings, *likely in 2019*
- If survey data is sufficient, we hope to reinstate ENERGY STAR certification for medical office buildings



# Why are we updating metrics?

- EPA is committed to providing information about building performance based on the most up-to-date market data available.
- When updated data sources become available, we refresh our ENERGY STAR metrics accordingly
- EPA's basic approach is **not** changing
  - Provide a national level benchmark
  - Use source energy to provide equitable scores for all fuel mixes
  - Incorporate variables that capture weather and business activity
  - Exclude from analysis terms about technology, in order to reward technology that saves energy



# Schedule for metric updates

- **Perform detailed analysis**
  - Started May 2016
  - Hundreds of regression model formulations
  - Explore new variables captured by CBECS
  - Compare CBECS and Portfolio Manager Data
  - Determine appropriate changes to regression models used for score calculations
- **Program metric updates into Portfolio Manager**
  - Ongoing
  - Document software requirements
  - Program code changes to the tool and perform extensive testing
- **Release updated metrics in Portfolio Manager**

**→ Target date is August 26, 2018**

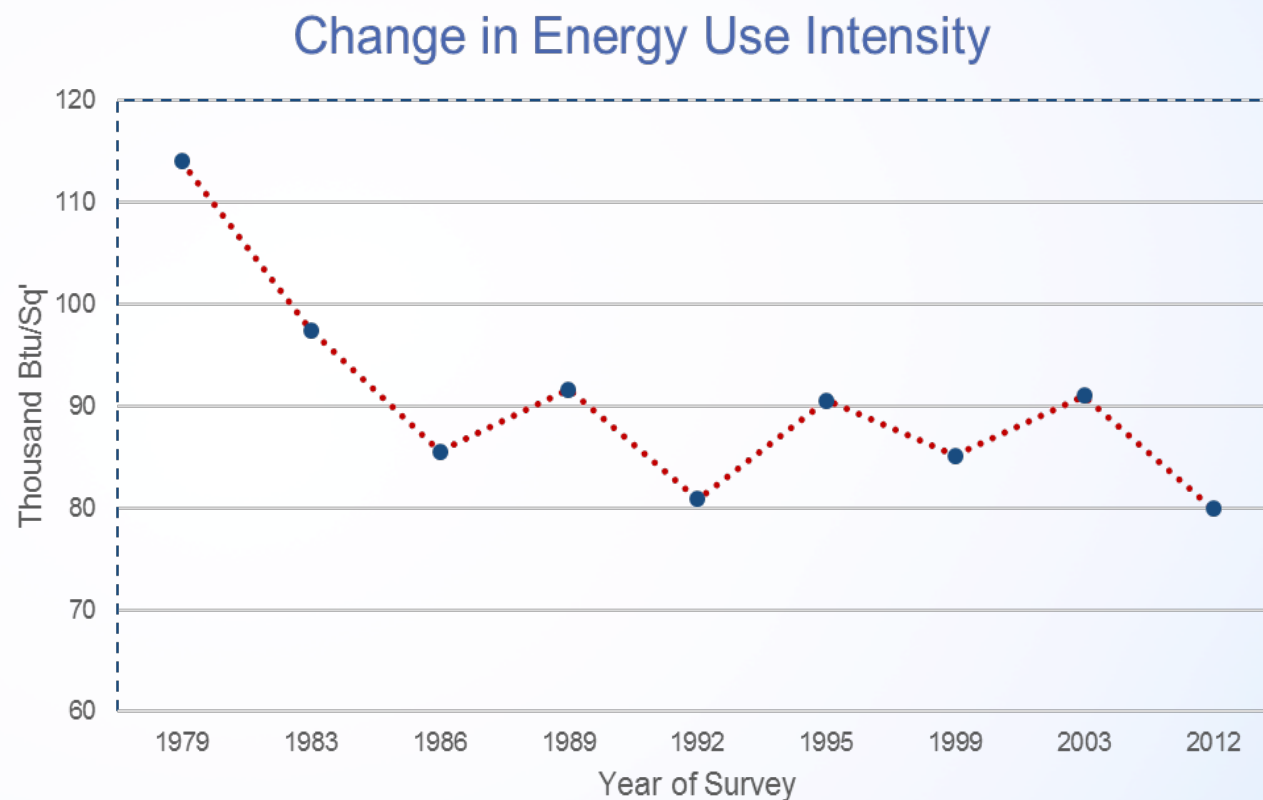
# Impact on historical scores

- When we update the methodology, the new calculations will be applied to all time periods
- Users will maintain the ability to compare performance over time
  - Even if scores go down, users will still see their improvement between the baseline and the current periods
  - Continue to analyze differences that are a result of their own activities, not EPA's methodology

Metrics Summary			
Metric	Dec 2014 (Energy Baseline)	Mar 2017 (Energy Current)	Change
ENERGY STAR Score (1-100)	39	48	9.00 (23.10%)
Source EUI (kBtu/ft <sup>2</sup> )	294.9	264.4	-30.50 (-10.30%)
Site EUI (kBtu/ft <sup>2</sup> )	118.7	95.8	-22.90 (-19.30%)
Energy Cost (\$)	581,581.78	540,588.06	-40993.72 (-7.00%)
Total GHG Emissions Intensity (kgCO <sub>2</sub> e/ft <sup>2</sup> )	11.3	9.9	-1.40 (-12.40%)
Water Use (All Water Sources) (kgal)	3,373.9	3,228.1	-145.80 (-4.30%)
Total Waste (Disposed and Diverted) (Tons)	879.99	836.75	-43.24 (-4.90%)

# Overall trend in U.S. building energy use

- Long-term trend has been relatively stable over the last 30 years.
- 2012 survey shows lower aggregate intensity as compared with 2003.
- This is a good trend. It also means that ENERGY STAR scores will shift.





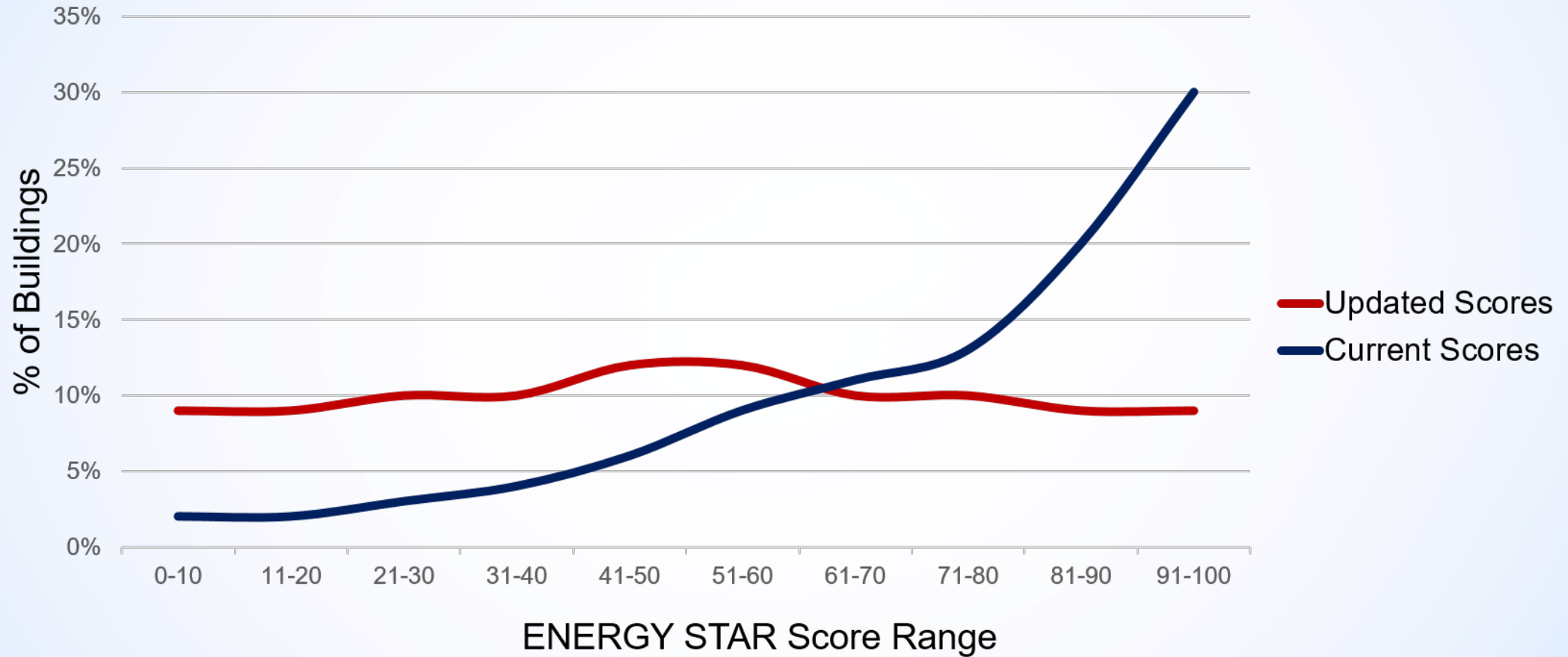
# 2012 Commercial Buildings Energy Consumption Survey

- **New and improved data**
- Nationally representative survey of U.S. commercial buildings
- Collects energy usage data and building characteristics
- Published in 2016 by the DOE's Energy Information Administration (EIA)
  - More current data than 2003 CBECS used for current score
- Larger sample
  - 29% larger than 2003 (6,720 vs. 5,215 records)
- More buildings and bigger buildings in the U.S.
  - 14% increase in the total number of buildings
  - 22% increase in total building floor space

# Objectives of analysis and score update

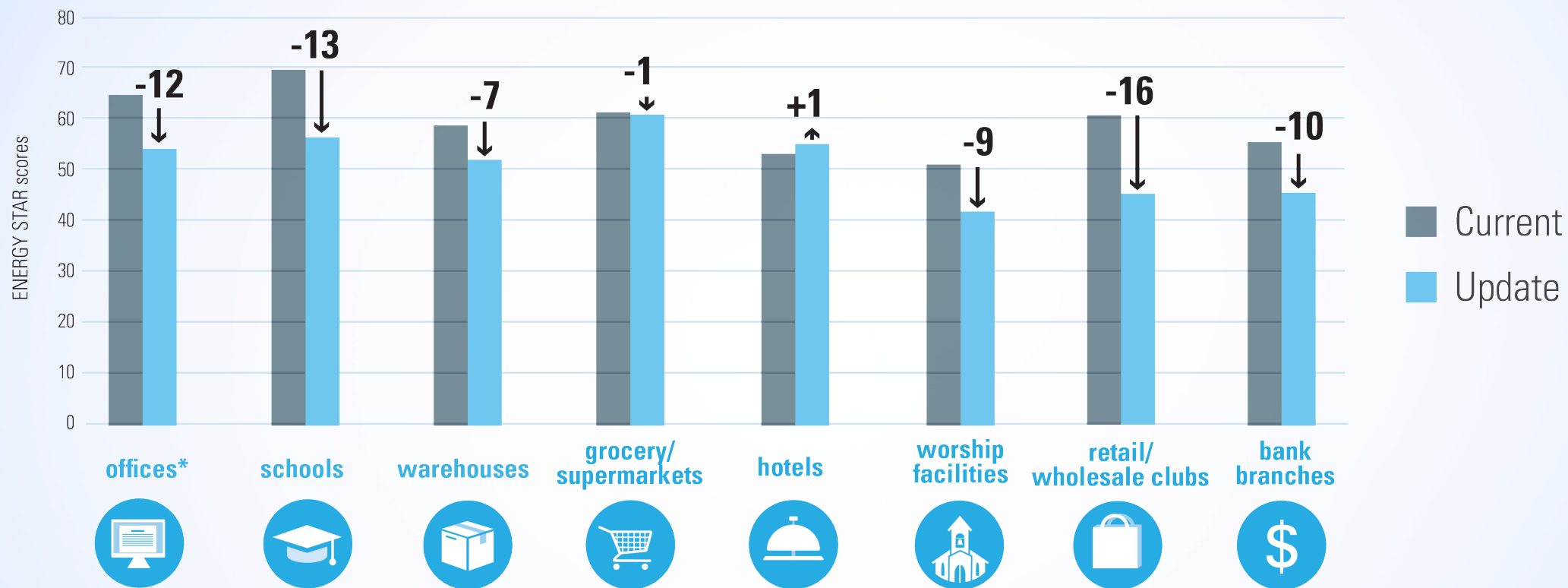
- Leverage the most recent market data
  - This will show us if buildings are becoming more or less efficient
  - If the market is getting more efficient, then it may become harder to qualify for ENERGY STAR
- Re-assess key drivers of energy use
  - Have the relationships between operating characteristics and energy intensity changed in the last 10 years?
  - Are there new variables in CBECS that we should be adjusting for going forward?

# ENERGY STAR scores need to be recalibrated over time





## Working estimated average ENERGY STAR score change by space type



\*office, financial office, courthouse

These are average score changes for these building types. An individual building's score change is likely to differ from the average change shown above.

# New buildings size minimum requirements for ENERGY STAR Score

Property Type	Current Score Minimum	Updated Score Minimum
Bank Branches	1,000 ft <sup>2</sup>	1,000 ft <sup>2</sup>
Worship Facilities	1,000 ft <sup>2</sup>	1,000 ft <sup>2</sup>
Offices	5,000 ft <sup>2</sup>	1,000 ft <sup>2</sup>
Schools	5,000 ft <sup>2</sup>	1,000 ft <sup>2</sup>
Warehouses	5,000 ft <sup>2</sup>	1,000 ft <sup>2</sup>
Grocery/Supermarkets	5,000 ft <sup>2</sup>	5,000 ft <sup>2</sup>
Hotels	5,000 ft <sup>2</sup>	5,000 ft <sup>2</sup>
Retail/Wholesale Club	5,000 ft <sup>2</sup>	5,000 ft <sup>2</sup>

# New use details in Portfolio Manager

- Warehouse
  - Percentage of Gross Floor Area Used for Cold Storage (**New in August**)
  - Percent that can be cooled and Percent that can be heated (**New in August for Refrigerated Warehouse**)
- Worship Facilities
  - Gross Floor Area Used for Food Preparation (**New in August**)
  - Percent that can be cooled and Percent that can be heated (**New in August**)
- K-12 Schools
  - Number of Workers on Main Shift
    - Exists now, but **will be required in August**
- Supermarket
  - Number of Open or Closed Refrigeration/Freezer Units
    - Exists now, but **will be required in August**



# Data center energy estimates

## Two options for properties with data centers

### 1. Existing and recommended option

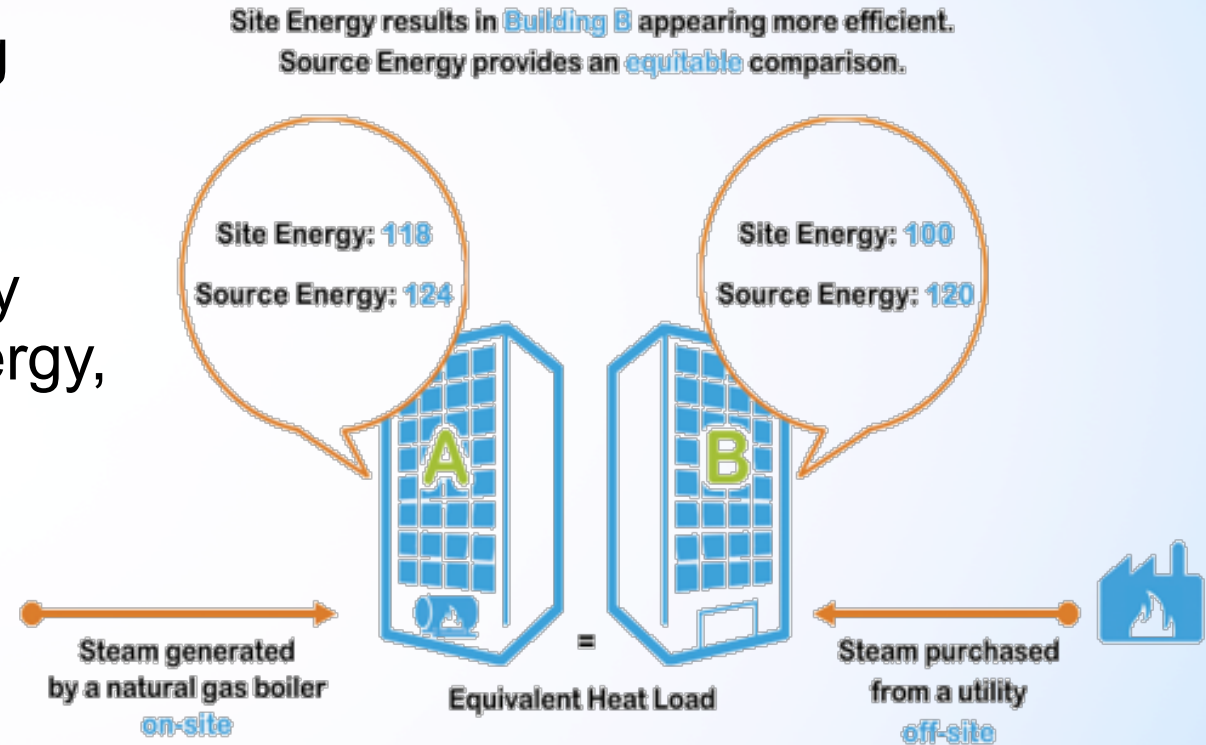
- Measure and enter IT energy
- Industry best practice – Most accurate and complete measure

### 2. New option: Estimated energy use for data centers

- Coming in August 2018
- Designed for smaller data centers, within another property type, and where it is not practical to measure IT Energy
- Estimate capped at 10% of the building area

# Update to source energy factor

- Source energy traces the heat and electricity requirements of the building back to the raw fuel input
  - Level playing field for different fuel types
- Portfolio Manager delivers several key performance indicators in Source Energy,
  - Weather normalized source EUI.
  - ENERGY STAR score
- Incorporates all types of electric generation: Coal, Gas, Wind, Hydro, etc...



# Electric Source Factor: grid electricity from renewable energy

- **Past approach**

- Grid electricity generated from renewable energy treated as requiring the same raw fuel inputs as fossil fuel energy.

- **New approach**

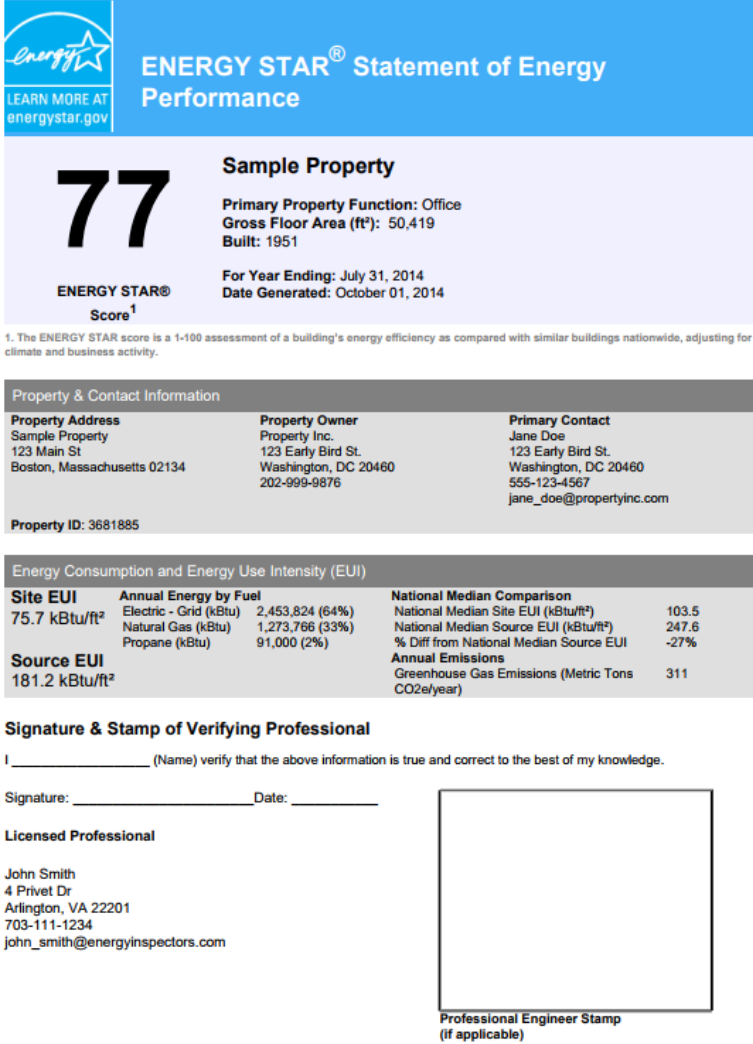
- Offsite renewables lower the national average electric source factor. Electricity generated from renewable energy sources have lower raw fuel inputs than electricity generated from fossil fuels.

- **New electric source factor releasing Aug 2018**

- Dropping from 3.1 to 2.8 (more efficient grid)
- Will impact ENERGY STAR score & all source energy metrics
- ENERGY STAR score could increase or decrease depending on a building's fuel-mix ratio
- Changes based on this update alone will be small in magnitude comparatively

# Preparing for the updates

- Communicate the metric updates – to colleagues, clients, stakeholders, etc.
- If needed, document pre-update metrics with Portfolio Manager reports (in Reporting Tab)
  - “Performance Highlight” Report (Portfolio level, multi-year)
  - Statement of Energy Performances (Building level, represents 12 month performance period)



**ENERGY STAR® Statement of Energy Performance**

**77**  
ENERGY STAR® Score<sup>1</sup>

**Sample Property**  
Primary Property Function: Office  
Gross Floor Area (ft²): 50,419  
Built: 1951  
For Year Ending: July 31, 2014  
Date Generated: October 01, 2014

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information		
<b>Property Address</b> Sample Property 123 Main St Boston, Massachusetts 02134	<b>Property Owner</b> Property Inc. 123 Early Bird St. Washington, DC 20460 202-999-9876	<b>Primary Contact</b> Jane Doe 123 Early Bird St. Washington, DC 20460 555-123-4567 jane_doe@propertyinc.com
Property ID: 3681885		

Energy Consumption and Energy Use Intensity (EUI)			
<b>Site EUI</b> 75.7 kBtu/ft²	<b>Annual Energy by Fuel</b>		<b>National Median Comparison</b> National Median Site EUI (kBtu/ft²) 103.5 National Median Source EUI (kBtu/ft²) 247.6 % Diff from National Median Source EUI -27%
	Electric - Grid (kBtu)	2,453,824 (64%)	
	Natural Gas (kBtu)	1,273,766 (33%)	
	Propane (kBtu)	91,000 (2%)	
<b>Source EUI</b> 181.2 kBtu/ft²			<b>Annual Emissions</b> Greenhouse Gas Emissions (Metric Tons CO2e/year) 311

**Signature & Stamp of Verifying Professional**

I \_\_\_\_\_ (Name) verify that the above information is true and correct to the best of my knowledge.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Licensed Professional**

John Smith  
4 Privet Dr  
Arlington, VA 22201  
703-111-1234  
john\_smith@energyinspectors.com

Professional Engineer Stamp (if applicable)



# Preparing for the updates

- Document ENERGY STAR pre-update scores for other third-party certification and incentives
- Get ready for the upcoming data center flexibility and possible new required inputs for the ENERGY STAR score
- Tune in to EPA announcements and check out [www.energystar.gov/scoreupdates](https://www.energystar.gov/scoreupdates) to stay up-to-date.

# Preparing for the updates

- Apply for ENERGY STAR certification...especially if your score is close to 75!
- Applications submitted by July 26, 2018 will be assessed using currently available (pre-update) scores.
  - **Applications received before July 26, 2018** and which require no significant follow-up or changes, will be guaranteed to be approved and awarded certification prior to the score changes.
  - **Applications received July 26 – August 26** are not guaranteed to be approved prior to the score changes.
  - **Applications received after August 26** will be evaluated using the updated score models.
- EPA will not rescind prior ENERGY STAR certifications.



# New application eligibility flexibility for buildings that earned the ENERGY STAR in 2017

- To aid in this transition to updated scores, EPA is making a one-time update to eligibility rules to allow everyone to apply before the score changes are implemented.
- EPA is updating the requirement to wait at least 11 months after the “Year Ending” date of your last approved application.
- **Policy for 2018 Only** – All buildings that earned 2017 ENERGY STAR certification will be eligible to apply for 2018 certification using a “**Year Ending Date**” of **April 30, 2018** or earlier.


# 2018 Certification “Year Ending Date”

2017 Certification “Year Ending Date”	Next eligible “Year Ending Date”
Sometime in 2016	12/31/2017
1/31/2017	12/31/2017
2/31/2017	1/31/2018
3/31/2017	2/28/2018
4/30/2017	3/31/2018
5/31/2017	4/30/2018
6/30/2017	4/30/2018
7/31/2017	4/30/2018
8/31/2017	4/30/2018
9/30/2017	4/30/2018
10/31/2017	4/30/2018
11/30/2017	4/30/2018
12/31/2017	4/30/2018



# Find the “Year Ending Date” on Your Application


OMB No. 2060-0347

 **ENERGY STAR® Application for Certification**  
LEARN MORE AT [energystar.gov](http://energystar.gov)

**87**  
ENERGY STAR®  
Score<sup>1</sup>

**Office - Test Application**  
Registry Name: Office - Test Application  
Property Type: Office  
Gross Floor Area (ft²): 128,600  
Built: 1992  
For Year Ending: 04/30/2016<sup>2</sup>  
Date Application Becomes Ineligible: 08/28/2016

1. The ENERGY STAR Score is based on total source energy. A score of 75 is the minimum to be eligible for the ENERGY STAR.  
2. Applications must be submitted to EPA within 120 days of the Year Ending Date. The award is not final until approval is received from EPA.

 Please use the [Licensed Professional's Guide to the ENERGY STAR® for Commercial Buildings](http://www.energystar.gov/pguide) for reference in completing this checklist (<http://www.energystar.gov/pguide>).

**Property & Contact Information**

Property Address	Property Owner	Primary Contact
Office - Test Application 37 Example Street Washington, District of Columbia (D.C.) 20007	ICF International 9300 Lee Highway Fairfax, VA 22031 ( ) -	John Smith 37 Example Street Arlington, VA 22201 703-732-2067 jon.gimber@icf.com

Property ID: 3625620

**1. Review of Whole Property Characteristics**

**Basic Property Information**

1) Property Name for Registry: Office - Test Application ☐ Yes ☐ No  
Is this the official name to be displayed in the [Registry of ENERGY STAR Certified Buildings and Plants](#)?  
If "No", please specify: \_\_\_\_\_

2) Property Type: Office ☐ Yes ☐ No  
Is this an accurate description of the primary use of this property?

EPA Form 5900-197 Page 1 of 9 Tracking Number: APP-20160727-1-3625620  
Generated On: 07/27/2016

**87**  
ENERGY STAR®  
Score<sup>1</sup>

**Office - Test Application**  
Registry Name: Office - Test Application  
Property Type: Office  
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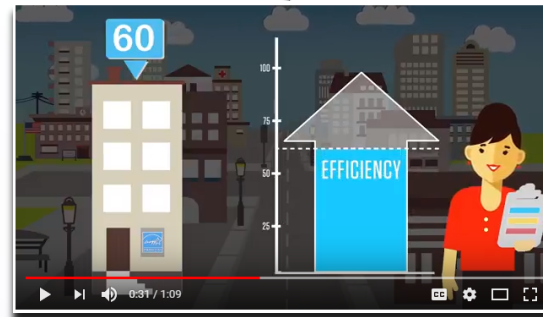
# How EPA is preparing

- Conducting general outreach and sector-specific webinars, ongoing since 2014
- Coordinating with local and state benchmarking policy implementers
- Briefing organizations that offer incentives, recognition, and third party certifications based on ENERGY STAR metrics
- Preparing additional materials for ENERGY STAR partners, including associations, so we can broadly share consistent information leading up to August 2018

# Spread the word!

- Communicate metric updates to colleagues, clients, stakeholders, etc. using EPA's communications toolkit:

- ✓ Co-brandable fact sheet
- ✓ Shareable graphic
- ✓ Template social media content
- ✓ Template training slides
- ✓ Quick video tutorial about the 1-100 ENERGY STAR score



**UPDATES TO ENERGY STAR® BUILDING METRICS ARE COMING IN AUGUST 2018**

The simple choice for energy efficiency

March 22, 2018

If you benchmark one or more properties in ENERGY STAR Portfolio Manager®, you'll likely see a change in your buildings' 1-100 ENERGY STAR scores and other source energy metrics after August 26, 2018. That's because EPA is updating performance metrics in Portfolio Manager based on the most recent market data available. This is part of EPA's standard process to keep ENERGY STAR metrics as current as possible, and reflective of current market performance.

**How will this impact my ENERGY STAR score?**

The 1-100 ENERGY STAR score compares your building's energy performance to that of similar buildings nationwide. The most recent market data available shows an overall improvement in the energy performance of the U.S. building stock in recent years. So when Portfolio Manager metrics are updated this August, ENERGY STAR scores and other performance metrics will, on average, go down.

**Figure 1: Average score changes for common property types**

Property Type	Average Score Change
Offices*	-12
Schools	-13
Warehouses	-7
Grocery/supermarkets	-1
Hotels	+1
Worship facilities	-9
Retail/wholesale clubs	-16
Bank branches	-10

**What is the new available market data?**

For most types of commercial buildings, the 1-100 ENERGY STAR score is based on the Commercial Buildings Energy Consumption Survey, which is conducted every four years by the U.S. Department of Energy's Energy Information Administration. The latest CBECs data became available in 2016 and is based on the results of the 2012 survey.

**When will the changes take effect?**

The release date for all updated scores is **August 26, 2018**. Users will see the updated metrics when they login to Portfolio Manager on Monday, August 27. Releasing the updated scores at one time will ensure that mixed-use buildings experience only one change.

**How can I learn more and prepare?**

Visit [www.energystar.gov/scoreupdates](http://www.energystar.gov/scoreupdates) for details about the updates, guidance on how to prepare for the updates, and a communication toolkit for sharing this news with your stakeholders. You can also join a webinar or view a recorded webinar at <https://esbuildings.webex.com/> to learn more.

For more than 20 years, EPA's ENERGY STAR program has been America's resource for saving energy and saving money. Visit [energystar.gov](http://energystar.gov) for more information.

To co-brand, insert logo here

Download EPA's score update materials at: [www.energystar.gov/scoreupdates](http://www.energystar.gov/scoreupdates)

Learn more at [www.energystar.gov/scoreupdates](http://www.energystar.gov/scoreupdates)

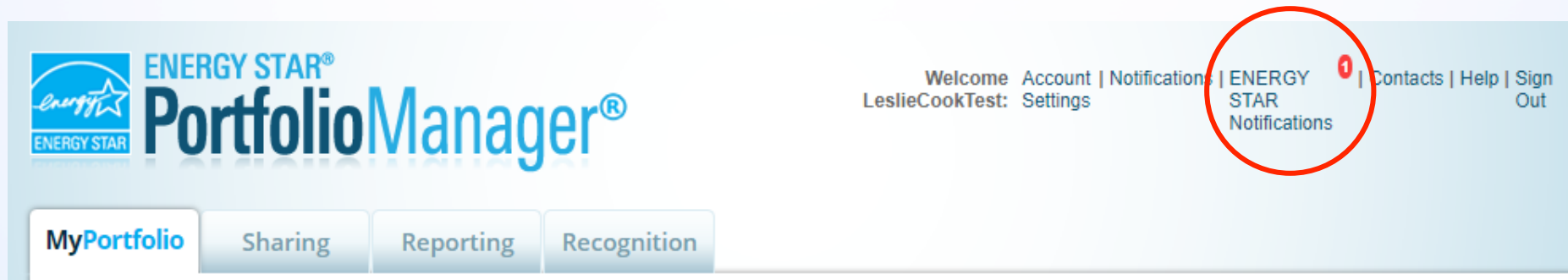
- Summary of changes
- Timeline of 2018 metric updates
- Guidance on how to prepare
- Links to FAQs
- Links to register for future EPA informational webinar on 6/20
- Slides from previous webinars
  - Embedded video of recorded first webinar
  - Links to six recorded sector-specific update webinars



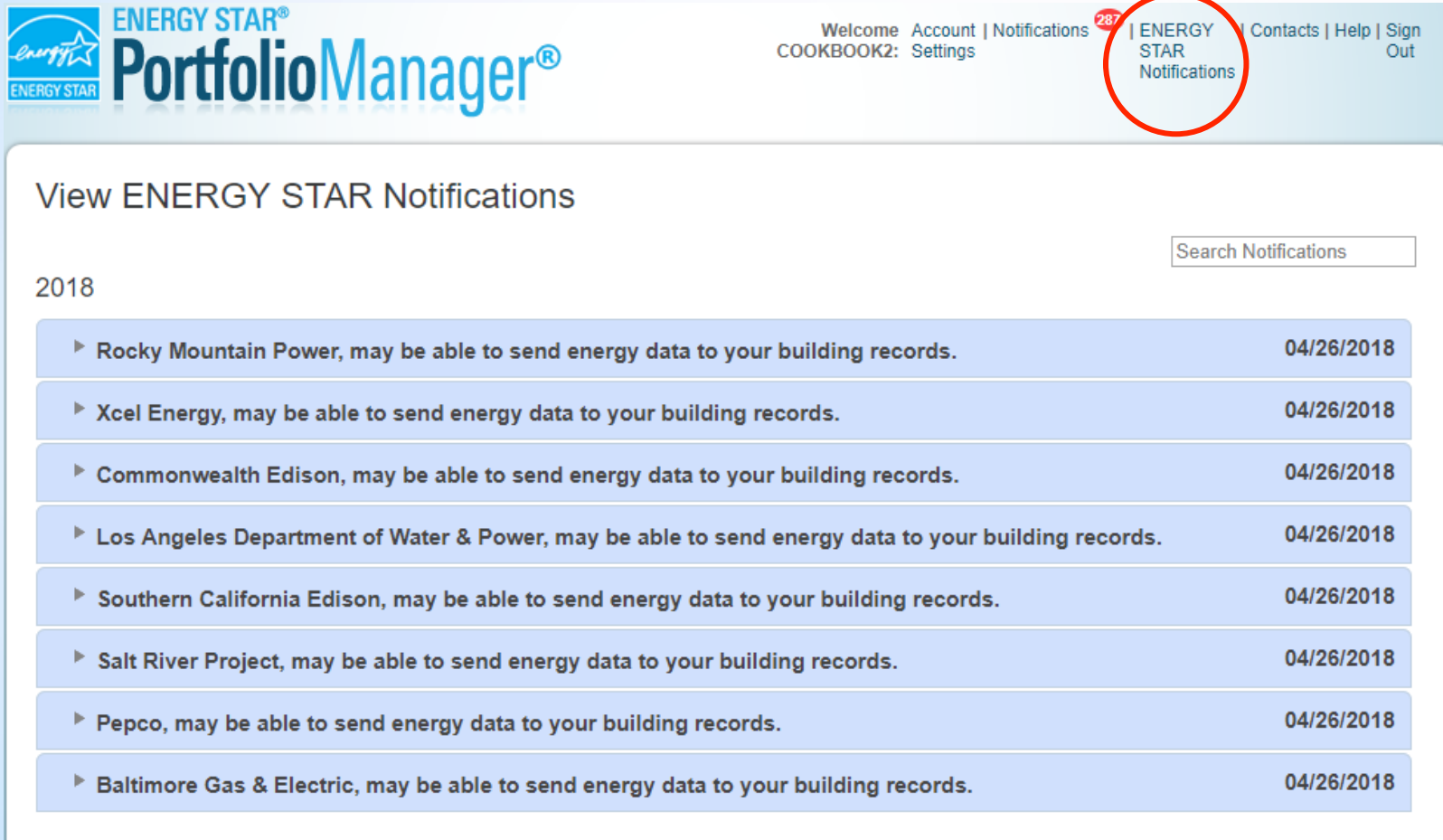
# New Feature!

## Find and Connect with Utility Data Services in Portfolio Manager

Released in April 2018



# Account level notification



ENERGY STAR®  
PortfolioManager®

Welcome | Account | Notifications <sup>287</sup> | ENERGY STAR Notifications | Contacts | Help | Sign Out

COOKBOOK2: Settings

## View ENERGY STAR Notifications

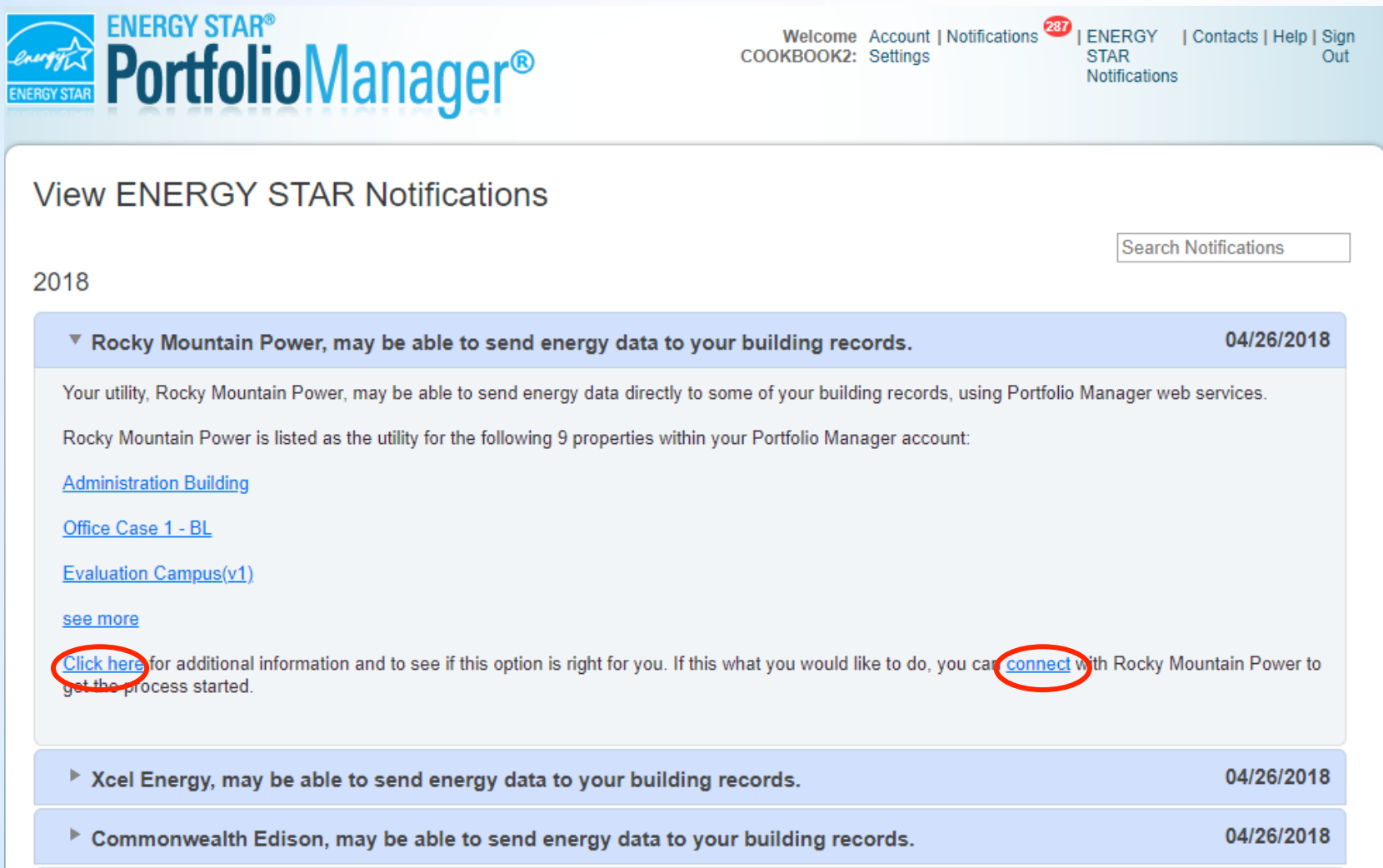
2018

Search Notifications

▶ Rocky Mountain Power, may be able to send energy data to your building records.	04/26/2018
▶ Xcel Energy, may be able to send energy data to your building records.	04/26/2018
▶ Commonwealth Edison, may be able to send energy data to your building records.	04/26/2018
▶ Los Angeles Department of Water & Power, may be able to send energy data to your building records.	04/26/2018
▶ Southern California Edison, may be able to send energy data to your building records.	04/26/2018
▶ Salt River Project, may be able to send energy data to your building records.	04/26/2018
▶ Pepco, may be able to send energy data to your building records.	04/26/2018
▶ Baltimore Gas & Electric, may be able to send energy data to your building records.	04/26/2018

- Clicking the new “ENERGY STAR Notifications” takes you to a new page of messages, organized by publication date.
- If your account includes buildings where utility data serves are available an account level notification will be displayed as a new “ENERGY STAR Notification”.
- Each utility will generate a unique notification.
- Note that messages only display in buildings’ primary Portfolio Manager accounts (not within accounts a building may have been shared with).

# Account level notification



The screenshot shows the ENERGY STAR Portfolio Manager interface. At the top, there is a navigation bar with links for Welcome, Account, Notifications (with a red badge showing 287), ENERGY STAR Notifications, Contacts, Help, and Sign Out. The main heading is "View ENERGY STAR Notifications". Below this, there is a search bar labeled "Search Notifications". The year "2018" is displayed. The first notification is from Rocky Mountain Power, dated 04/26/2018, with the subject "Rocky Mountain Power, may be able to send energy data to your building records." The notification text states that Rocky Mountain Power may be able to send energy data directly to some of the user's building records. It lists the following properties: Administration Building, Office Case 1 - BL, and Evaluation Campus(v1). There is a "see more" link. At the bottom of the notification, there is a red circle around the text "Click here" and another red circle around the word "connect". The other two notifications are from Xcel Energy and Commonwealth Edison, both dated 04/26/2018, with the same subject line.

ENERGY STAR®  
PortfolioManager®

Welcome Account | Notifications <sup>287</sup> | ENERGY STAR Notifications | Contacts | Help | Sign Out

COOKBOOK2: Settings

## View ENERGY STAR Notifications

Search Notifications

2018

▼ Rocky Mountain Power, may be able to send energy data to your building records. 04/26/2018

Your utility, Rocky Mountain Power, may be able to send energy data directly to some of your building records, using Portfolio Manager web services.

Rocky Mountain Power is listed as the utility for the following 9 properties within your Portfolio Manager account:

[Administration Building](#)

[Office Case 1 - BL](#)

[Evaluation Campus\(v1\)](#)

[see more](#)

[Click here](#) for additional information and to see if this option is right for you. If this what you would like to do, you can [connect](#) with Rocky Mountain Power to get the process started.

► Xcel Energy, may be able to send energy data to your building records. 04/26/2018

► Commonwealth Edison, may be able to send energy data to your building records. 04/26/2018

- "[Click here](#)" takes you to the utility's benchmarking website.
  - If no URL exists for a utility, the URL will take you to [EPA's interactive utility data map](#).
- "[Connect](#)" opens the "Contacts & Organizations Search Results" page with the utility's Portfolio Manager account displaying as the search result.

# New property with no energy meters

If a building has no energy meters entered AND they have a utility that offers data exchange through web services, a new paragraph in the box below displays in the property level Energy Tab.

**!** There are currently no energy meters entered for this property/building. In order to track energy usage and receive energy metrics, you must provide an energy meter. [Enter information about your energy meters](#) to begin tracking energy usage. After entering the meter, you will need to [choose to include it in your metrics](#).

For a step-by-step guide to entering meter data, see [How to get Utility Data into Portfolio Manager](#).

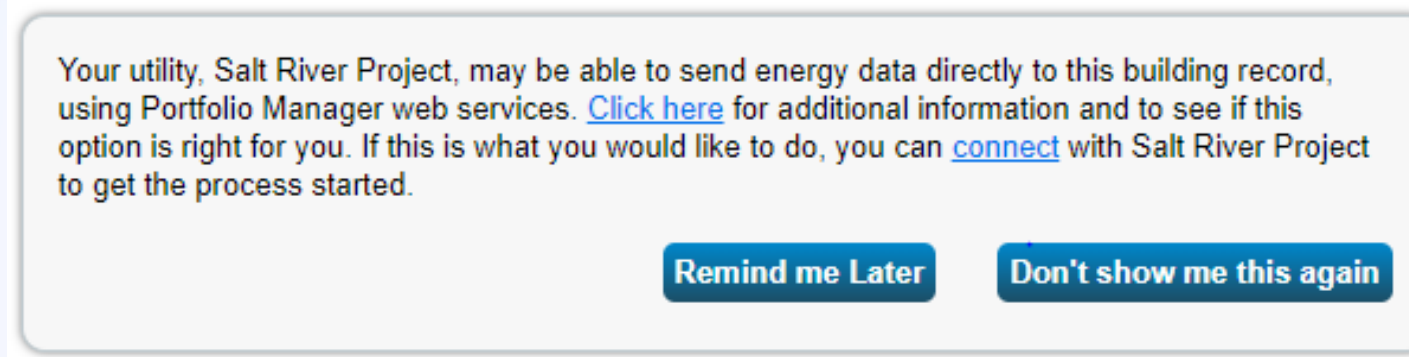
→ Your utility, Pepco, may be able to send energy data directly to this building record, using Portfolio Manager web services. [Click here](#) for additional information and to see if this option is right for you. If this is what you would like to do, you can [connect](#) with Pepco to get the process started.

- "[Click here](#)" takes you to the utility's benchmarking website. If no URL exists for a utility, the URL will take you to [EPA's interactive utility data map](#).
- Clicking the link for "[connect](#)" opens the "Contacts & Organizations Search Results" page with the utility's PM account name displaying as the search result.



# Property with energy meters

If a building has entered energy meters AND they have a utility that offers data exchange through web services the following message displays in the property level Energy Tab.



- "[Click here](#)" takes you to the utility's benchmarking website. If no URL exists for a utility, the URL will take you to [EPA's interactive utility data map](#).
- Clicking the link for "[connect](#)" opens the "Contacts & Organizations Search Results" page with the utility's PM account name displaying as the search result.
- If the user is already connected to their utility for web services, this message will not display.

# Upcoming Webinars

Date	Webinar
Thursday, May 23, 2:00 pm EDT	Award Winning Energy Management Programs – 2018 ENERGY STAR Partners of the Year for Energy Management
Wednesday, May 30, 1:00 pm EDT	New Rules to Apply for 2018 ENERGY STAR Certification Before Metric Updates
Wednesday, June 6, 1:00 pm EDT	Engaging Commercial Tenants and Occupants in Energy Efficiency
Wednesday, June 20, 1:00 pm EDT	Preparing for EPA's ENERGY STAR metric updates

Register at <https://esbuildings.webex.com/>

# Questions and Discussion

Learn more at [www.energystar.gov/scoreupdates](http://www.energystar.gov/scoreupdates)